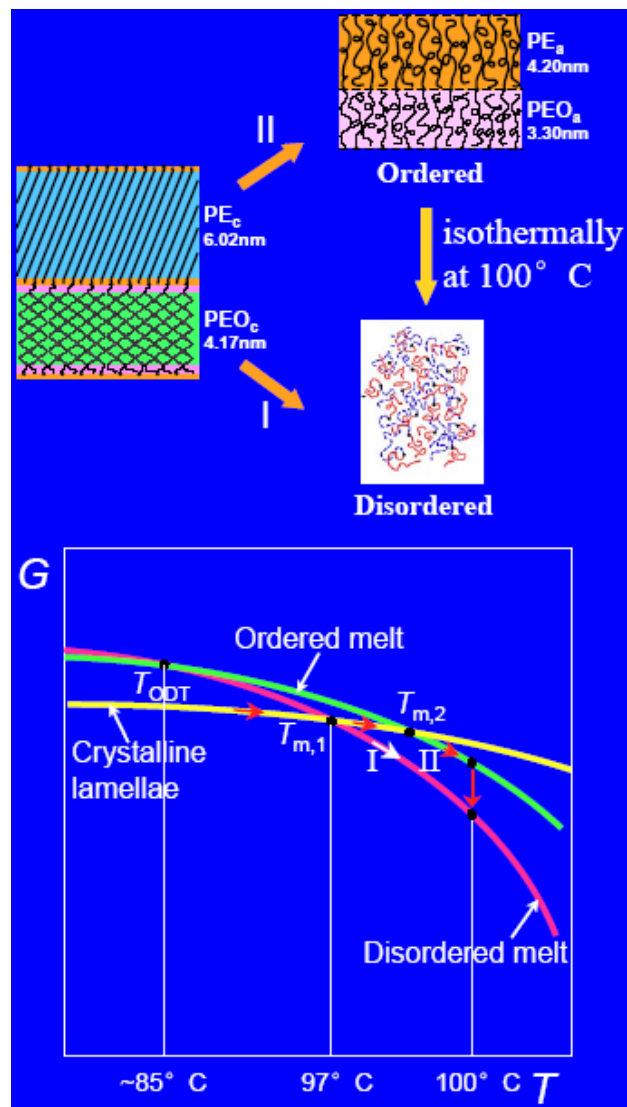


Supramolecular Self-assembly of Oligo Block Copolymers

Lei Zhu, University of Connecticut, DMR-0348724



- Block oligomers exhibit richer phase morphology than their long chain analogues
- Introducing liquid crystalline and crystalline blocks into oligoblock copolymers makes their phase transitions complicated
- We are interested in both calamitic and discotic liquid crystalline oligoblock copolymers, which form supramolecular self-assemblies through specific interactions such as hydrogen-bonding and hydrophilic-hydrophobic interactions
- Liquid crystalline oligoblock copolymers are useful materials for optical, electronic, and biological applications.

⇐ This is an example of pathway-dependent melting of an oligo PE-PEO block copolymer, $E_{29}EO_{20}$. Isothermal order-to-disorder transition is observed and can be explained using a G-T diagram.



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Publications:

- Four papers (2 journal papers and 2 manuscripts submitted)
- 6 presentations in national and international meetings such as APS, ACS, etc.

Education:

- Two Ph.D. students: Mr. Lu Sun (2nd year) and Mr. Jianjun Miao (1st year), and one M.S. student: Ms. Yuxiu Liu (2nd year)
- One post doctoral fellow, Dr. Li Cui, and a visiting professor, Prof. Qiaolong Yuan, also participate in this project.
- Four REU undergraduate students: Alyssa Wiley, Henry Lau, Adam Mayernick, and Stephen Viel; Two UConn undergraduate students: Ethan Ertal and Phillip Baker

Outreach for K12 Education:

The PI is currently working with Mr. Raymond McCarthy, a technology education teacher at Somers High School, CT to develop a new curriculum – Pre-Engineering for Young Women. This outreach activity involve three experimental demonstration and one design project, together with a recruiting program for undergraduate students